

WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:

a selector, arranged to select a plurality of feature points on or near a contour line of a region of interest when a contour of the region of interest in a reference image sensed at reference time or viewpoint is input;

a memory for storing a connectivity between the plurality of selected feature points;

10 a seeker, arranged for seeking a plurality of corresponding points, which respectively correspond to the plurality of feature points, in an image to be sought, which is sensed at another time or viewpoint; and

15 an extractor, arranged to extract a contour between the plurality of corresponding points as a region of interest of the image to be sought on the basis of the connectivity stored in said memory.

2. The apparatus according to claim 1, wherein said selector uses at least some of the plurality of corresponding points as feature points used to extract the region of interest of the image to be sought.

3. The apparatus according to claim 1, wherein said selector selects the feature points on the basis of shape information of the contour of the region of interest.

4. The apparatus according to claim 1, wherein said selector selects the feature points on the basis of image information on or near the contour line of the region of interest.

5 5. The apparatus according to claim 1, wherein said extractor sequentially traces pixels with high edge strengths using one of two feature points having connectivity as a start point, and the other as an end point.

10 6. The apparatus according to claim 5, wherein said extractor performs the trace in two directions by replacing the feature points as the start and end points with each other, and selects one of trace results.

15 7. The apparatus according to claim 6, wherein said selector selects new feature points on the basis of a period where the trace results in the two directions match.

8. The apparatus according to claim 5, wherein said extractor performs masking of neighboring pixels in correspondence with a positional relationship between a point of interest and the end point upon comparing edge strengths of the neighboring pixels at the point of interest of trace.

25 9. The apparatus according to claim 8, wherein the masking uses a mask corresponding to an angle the point of interest and the end point make with each other.

10. The apparatus according to claim 9, wherein the masking limits a field of view of the trace so as to prevent the point of interest from moving away from the end point.
- 5 11. The apparatus according to claim 8, wherein the masking limits a field of view of the trace so as to make the point of interest always approach the end point.
12. The apparatus according to claim 8, wherein the
10 masking limits a field of view of the trace so as to prevent the point of interest from returning to a previous path thereof.
13. The apparatus according to claim 8, wherein the extractor comprises a plurality of sets of masks having
15 different field limitation characteristics, and selectively uses the plurality of sets of masks in correspondence with image information of a trace period.
14. The apparatus according to claim 8, wherein the extractor comprises a plurality of sets of masks having
20 different weighting coefficients, and selectively uses the plurality of sets of masks in correspondence with image information of a trace period.
15. An image processing method comprising the steps of:
- 25 selecting a plurality of feature points on or near a contour line of a region of interest when a

contour of the region of interest in a reference image sensed at reference time or viewpoint is input;

storing connectivity between the plurality of selected feature points;

5 seeking a plurality of corresponding points, which respectively correspond to the plurality of feature points, in an image to be sought, which is sensed at another time or viewpoint; and

extracting a contour between the plurality of
10 corresponding points as a region of interest of the image to be sought on the basis of the connectivity stored in said memory.

16. A computer program product comprising a computer readable medium having a computer program code, for an
15 image processing method, comprising process procedure code for:

selecting a plurality of feature points on or near a contour line of a region of interest when a contour of the region of interest in a reference image
20 sensed at reference time or viewpoint is input;

storing connectivity between the plurality of selected feature points;

seeking a plurality of corresponding points, which respectively correspond to the plurality of
25 feature points, in an image to be sought, which is sensed at another time or viewpoint; and

extracting a contour between the plurality of corresponding points as a region of interest of the image to be sought on the basis of the connectivity stored in said memory.